

REMARKS

I. Introduction

Upon entry of the present amendment, claims 1-8, 10-11, and 15-16 will be pending in this application. Claims 12 and 14 have been canceled and new claims 15 and 16 have been added. Claims 1, 7, 7, 8, 10, and 11 have been amended to clarify certain aspects of the invention. Based on the amendments and the following remarks, Applicants respectfully request reconsideration and allowance of the pending claims.

II. 35 U.S.C. § 112

The Examiner has objected to claims 1-7 as being indefinite, submitting that the originally-filed disclosure does not provide evidence that Applicants possessed the claimed limitation of “wherein first and second cavities define separate, non communicating cavities.” The Examiner acknowledges that there is support for this limitation when the respirator is “in use,” but submits that there is not support for the cavities to be separate once removed from the user’s face. Without acquiescing to the Examiner’s position, Applicants have moved the objected-to phrase to the portion of claim defining the mask “in use” and respectfully request that the rejection be withdrawn.

III. Summary of claim amendments and support

Amended claim 1 recites an air pressure supply means for supplying pressurized air to the second cavity, and now clarifies that the first and second sealing pieces “are adapted for increasing sealing contact under the influence of the air pressure supply means.” It also recites that these features (in combination with the other features of the claim) are arranged such that, in use, the first and second cavities define separate non-communicating cavities,

air is inhaled under negative pressure solely through the first cavity, air is exhaled solely through the first cavity, air is exhaled solely through the first cavity, and a positive pressure is maintained in the second cavity so that the first and second sealing means are urged into more positive engagement with the face of the user and substantially no pressure differential exists between the ambient atmosphere and the second cavity which will allow ambient air to enter the second cavity. Amended claim 8 also recites certain features that have been added to claim 1.

Support for these amendments appears in the specification at least in the passages at page 3, line 6 - page 4, line 9; page 13, lines 4-10; and page 14, lines 1-4 and currently-canceled claim 9. Support for the combination of these features and their effect is found at least at page 15, lines 6-8 and in Figures 1 to 3 of the application as originally filed. The passage at page 3, line 19 to page 4, line 6 makes it clear that the first and second sealing means do not need to share a common portion in order for the application of a positive pressure to urge them into more positive engagement with the user's face.

New claims 15 and 16 refer to particular features of the sealing means, support for which appears in original claims 10 and 11, as well as page 3, lines 21-22 and page 15, lines 6-8 of the application as originally filed. Applicant submits that term "locally" in claims 10 and 15 clarifies that the shape is at the locus of the sealing action of the sealing means.

Claim 7 has been amended to recite a first gaseous pathway "within the respirator" and corrects "first and second inlet means" to "respirator and second inlet means." Support for these amendments appears at least in Figure 6 (which is discussed in relation to the

respirator of Figure 1 at page 18, line 16 to page 19, line 11 in the application as originally filed).

Amended independent claim 8 is directed to a sealing piece “for attachment to” a respirator, and now recites “attachment lugs for the attachment of straps for fitting the respirator to the head of the user.” Support for these amendments appear in the specification at page 14, lines 17 to 18 and in Figure 2. Claim 8 also clarifies that the application of a positive pressure in the cavity “urges the first and second sealing means into a more positive engagement with the face of the user.” Support for this amendment is as discussed above.

Applicants believe that the presently-submitted amendments distinguish the present invention over the referenced art and clarify the inventive features of the shape of the sealing means, which enables the conservation of pressurized air without loss of protection.

IV. 35 U.S.C. § 102

A. Warncke

The Examiner has rejected claims 1-5 as being anticipated by Warncke (U.S. Patent No. 4,146,025). The Examiner submits that the Warncke patent teaches each and every claimed element. Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

Warncke discloses test equipment for testing the tightness of fit of a respirator 1. The test equipment comprises a plastic bag 10 that is worn over the respirator and a test gas cylinder 16 for inflating the bag. The bag has openings 10a, 12 which respectively seal around the air inlet 14 of the respirator and the neck of the wearer, and a connector 6 that engages with the exhaling valve 9 of the respirator. The connector defines an uptake passage

11 for the direct exit of exhaled air to a gas test tube 8 or collecting bag 18 without exposure to the test gas supplied to the bag. A leakage in the sealing frame 3 of the respirator is shown by the appearance of the test gas at the test tube or collecting bag.

Applicants submit that the Warncke bag does not form part of the respirator and does not define a cavity therein. Further, the bag cannot be considered as a second sealing means suitable for forming a seal on the face of the user. The neck is not normally considered part of the face – and even if the bag can contact the face prior to inflation, its contact does not amount to a seal thereon.

The Warncke rubber band and elastic cuff that seal the openings for the air inlet and neck are not “sealing means” adapted for increasing sealing contact under the influence of an air pressure supply means and are not urged by that means into a more positive engagement with the face of the user, as Applicants presently claim. Further, the test gas supply is not strictly an air pressure supply means because it contains ethylene (*see* Warncke, col. 2, lines 42 to 48).

Applicants thus submit that independent claim 1 is novel over the disclosure of Warncke and that the features of new claims 15 and 16 are not present in an ordinary rubber band or elastic cuff. Applicants further believe that the rejected dependent claims are also novel. Specifically, the features of dependent claim 5 are not present in the Warncke respirator because the direction of inhaling air (which is likely under positive pressure) travels over the oro-nasal cavity (mask 2), and not from the oro-nasal cavity to the ocular cavity before inhalation.

Accordingly, at least for the above-discussed reason, Applicants respectfully request that these rejections be reconsidered and withdrawn.

B. Cronjaeger

The Examiner has rejected claims 8-10 and 12 as being anticipated by Cronjaeger (U.S. Patent No. 4,905,683). The Examiner submits that the Cronjaeger patent teaches each and every claimed element. Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

The Cronjaeger patent discloses respirators for positive pressure respirator equipment comprising several peripheral seal edges 6, 11 around the face mask. In one embodiment (Fig. 1), the Cronjaeger respirator defines an outer sealing chamber 4 and an inner “control” chamber 7 which co-operates with an oro-nasal mask. The oro-nasal mask includes a valve that is operated by a lever so that pressurized air supplied to the oro-nasal mask vents to the control chamber and out of the face mask to a flow monitor. In another embodiment (Fig. 2), the Cronjaeger oro-nasal mask includes a valve operated by inhalation of pressurized air supplied to the oro-nasal mask via inner chamber 7. The pressurized air vents from the valve to an outer “control” chamber 4 and out of the face mask to a flow monitor.

By contrast, Cronjaeger does not disclose a respirator in which air is inhaled under negative pressure (see Fig. 3). Nor does Cronjaeger disclose that, in use (or in normal operation), a positive pressure is maintained in the second cavity. The embodiments of Cronjaeger Fig. 1 and Fig. 2 should not be combined; Cronjaeger Fig 2 is relied upon in making the rejection, and that embodiment shows the exit of pressurized air from the second cavity during the exhalation stroke of the breathing cycle.

Applicants also submit that Cronjaeger does not disclose first and second sealing means adapted for increasing sealing contact under the influence of the air pressure supply means or that, in use, the first and second sealing means are urged by that means into a more positive engagement with the face of the user. The Examiner has suggested that Fig. 2 shows first and second sealing means 6, 11 wherein a portion of the first seal appears to be J shaped and a portion of the second seal appears to be U shaped. But Applicants submit that this does not constitute a disclosure that both the sealing means are adapted for increasing sealing contact under the influence of the air pressure supply means. It is incorrect to read such a teaching into the Cronjaeger patent; although the Cronjaeger device uses a portion of pressurized inhaling air to report a failure in the seal, it still relies upon the escape of pressurized air at the failed seal for protective effect.

In particular, Cronjaeger does not report that it is the application of positive pressure in the second cavity that enables a tight seal around the first and second sealing means. The passage relied for support for this assertion (column 4, lines 42-50) says only that the user observes a defined constant flow quantity (of pressurized air) in the flow meter when the whole of the sealing means 6, 11 tightly fits.

Applicants thus submit that the rejected claims are novel over the disclosure of the Cronjaeger patent. Further, the features of new claims 15 and 16 (that both the first and second sealing means are locally J or U shaped in section and that the first sealing means comprises a reverse reflex seal) are not also disclosed by Cronjaeger.

The Examiner has rejected claim 7 as being unpatentable over Warncke in view of Beaussant (U.S. Patent No. 4,741,332), and claims 11 and 14 as being unpatentable over Cronjaeger. Without acquiescing to the Examiner's positions or the combinability of the cited references, Applicants respectfully submit that the rejected dependent claims should be considered allowable at least for at least the above discussed reasons for each of these references.

Moreover, the distinguishing features of independent claim 1 over Warncke relate to the shape of the sealing means and their action under the influence of the pressurized air supply. Beaussant is concerned with protective breathing equipment for aircrew. It discloses an arrangement in which pressurized air is inhaled through a demand regulator 24 supplied with oxygen and dilution air. The regulator housing 45 is enclosed within a case 46 and the space there between is fed with filtered pressurized air and dilution air. The contamination of dilution air by the demand regulator in prior art arrangements is thereby avoided.

By contrast, Beaussant is not concerned with conservation of pressurized air and makes no mention of sealing means whatsoever. One of ordinary skill in the art would not seek to combine the disclosures of Warncke and Beaussant in the way the Examiner suggests at least because the test equipment of Warncke is portable and does not, and indeed should not, require an in-line filter for the test gas.

VI. Double Patenting

The Examiner has rejected claims 1 and 6 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No.

7,523,755. Without acquiescing to the Examiner's position, Applicants submit a terminal disclaimer along with this response.

CONCLUSION

For at least the above reasons, Applicants respectfully request allowance of the pending claims and issuance of a patent containing these claims in due course. If the Examiner believes there are any issues that can be resolved via a telephone conference, or if there are any informalities that can be corrected by an Examiner's amendment, she is invited to contact the undersigned.

Respectfully submitted,

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